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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,673	10/31/2003	Hiroyuki Ito	SOEI/0058	1025

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EXAMINER

DHINGRA, RAKESH KUMAR

ART UNIT PAPER NUMBER

1763

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/698,673	<b>Applicant(s)</b> ITO ET AL.	
	<b>Examiner</b> Rakesh K. Dhingra	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.  
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.  
 4a) Of the above claim(s) 3 is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1 and 2 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☒ Claim(s) 1-3 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/03, 9/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claim 1, 2 drawn to a waveguide, classified in class 372, subclass 64.
- II. Claim 3 drawn to an ion source, classified in class 315, subclass 111.81.

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I (waveguide) has separate utility such as in non-ion source systems like optical waveguides (lasers). See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mireille Perrent on 7/1/05 a provisional election was made without traverse to prosecute the invention of Group I (waveguide), claims 1, 2. Affirmation of this election must be made by applicant in replying to this Office action.

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Claim 3 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

The drawings are objected to because of following:

#### **Figure 2:**

- 1) For the purpose of examination, Inner portion of Reference Number 26 (waveguide) as labeled is presumed to be solid waveguide and Convex Magnet Pole 25 is presumed as a solid member.
- 2) The area of the drawing between Convex Magnet Pole 25 and solenoid coil 28 is not labeled or described in specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes

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made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inouchi (US Patent No. 6,184,624) in view of Jansen (US Pub. No. 2005/0063659).**

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Inouchi teaches an ion source apparatus (Figure 1) that uses a waveguide body 2 made of Alumina (Column 5, lines 35-45).

Inouchi does not teach about Titanium Nitride coating on waveguide.

Jansen teaches an apparatus that uses Titanium Nitride coating on waveguides to reduce signal propagation delays (Claims 5, 6 and Paragraphs 0006, 0089, 0093).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use titanium Nitride film on waveguide as taught by Jansen in the apparatus of Inouchi to reduce signal propagation delays.

**Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inouchi (US Patent No. 6,184,624) in view of Jansen (US Pub. No.2005/0063659) as applied to Claim 1 and further in view of Sepp et al (US Patent No. 4,446,558).**

Inouchi in view of Jensen teach all limitations of the claim except for waveguide body made of Boron Nitride.

Sepp et al teach an apparatus (Figure 2) that uses waveguide body made of Boron Nitride to assure highly efficient dissipation (Abstract, Column 1, lines 48-52 and Column 2, lines 50-55).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use waveguide body made of Boron Nitride as taught by Sepp et al in the waveguide as taught by Inouchi in view of Jensen.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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**Hayashi (Patent No. JP405129802A)** teach an apparatus (Figures 1, 4) that uses Titanium Nitride film 7 on surface of dielectric disk 3 in a waveguide 2 to decrease secondary emission from the surface of the dielectric disk (Paragraph 0009).

**Daetwyler et al (US Patent No. 6,204,560)** teach an apparatus (Figure 1) that uses titanium nitride diffusion layer 36 on ridge waveguide 22 (Column 2, lines 52-55 and Column 3, lines 10-15) that provides increased effective barrier temperatures.

**Popov (US Patent No. 4,952,273)** teaches a plasma apparatus (Figure 16) for generation of high density plasma with high absorption of microwave power, that uses a coupler (waveguide) 172 filled with a dielectric material 178, that can be either of alumina, boron nitride or quartz (Column 9, lines 13-17).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh K. Dhingra whose telephone number is (571)-272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rakesh K Dhingra



Parviz Hassanzadeh  
Supervisory Patent Examiner  
Art Unit 1763